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ARBORETUM BULLETIN

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PRESIDENT'S MESSAGE

Many of the *"Bulletin's"* readers have made the effort to write to the Mayor and the City Council, expressing their views on the future of the Arboretum in Washington Park.

These letters have been extremely helpful in increasing the awareness of city officials that they must "bite the bullet" and make some sort of a decision as to their objective for the development of the Arboretum and their financial and administrative commitment to obtaining that goal.

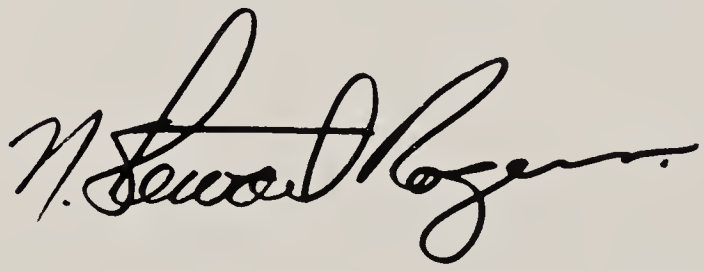
With increasing budgetary pressure at both the state and city levels, continued private support for such amenities as the Arboretum is becoming increasingly important, but it is simultaneously becoming clearer that private support cannot be sustained and enlarged in the absence of policy decisions about what is being supported or attempted.

Based on my discussions with city officials, I believe that they are very much aware of the fact that a significant Arboretum requires substantially different development than a normal city park, and I am hopeful that they will in the near future address themselves to defining both their objectives and their routes toward those objectives.

The next few months will be extremely important in the development of political policies relative to the Arboretum by the City of Seattle, and I urge each of you to continue to make your wishes for future Arboretum development known to the Seattle City Council.

Unfortunately, we seem to be living under a government which operates on the "squeaky wheel" principle.

Let's make sure that our corner of the wagon isn't too well lubricated!



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THE UNIVERSITY OF WASHINGTON
Arboretum bulletin

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Cones of *Pinus armandii*
(eight to nine inches long) (See p. 20)
Photo: B. O. Mulligan

Photo: N.Y.C. Housing Authority

Creating a garden has multiple rewards: It benefits the gardeners and enriches the environment.

People-Plant Interaction: A Man-Environment Relationship

*CHARLES A. LEWIS**

ABSTRACT

An intimate association with plants seems to stimulate behavioral responses and social interactions in residents of low-income housing, mental hospitals and physical rehabilitation centers. The subjective responses, not directly articulated by the gardener, are evident in his actions which result in reduced vandalism, cleaned streets, painted and repaired buildings, new neighborliness, improved patient response. Universality of the human response to plants is indicated in the broad appeal of the technique, effective over a wide range of age and social and ethnic groups. In each instance cited, the growing of plants was seen as effective in ameliorating diverse situations of human stress. Apparent social and behavioral qualities inherent in horticulture and the human response to plants are examined. The lack of research in this area by social and behavioral scientists is noted, and the opportunity and need for such research is presented. The man-plant relationship is seen as representing an area of design consideration for production of more humanly satisfying environments.

The use of flowers and plants to convey sympathy, love, and joy at times of death, illness or celebration is a cultural expression which has antecedents as far back as the Neanderthal man, who buried his dead with garlands of flowers (Solecki, 1971). Such common cultural patterns are so familiar that few of us have stopped to ponder their significance, yet responses such as these probably reflect longstanding and subtle interactions between man and his environment. Researchers are now giving more serious thought to the evolutionary role of vegetation in shaping man's biological and cultural needs (Iltis, Loucks, Andrews, 1970, Iltis, 1974).

*Charles A. Lewis is horticulturist at The Morton Arboretum, Lisle, Illinois. He is coordinator of the American Horticultural Society's People-Plant Program.

The deliberate use of plants and horticulture for human social benefit is increasing, too. This has come about as the result of observations by gardeners and horticulturists who have discovered beneficial effects in various stressful situations. Where gardening has been encouraged in inner-city ghettoes, distinct social benefits have been seen. Since the early eighteenth century the therapeutic and rehabilitative benefits of horticulture have been noticed in places where mental patients have been allowed to become involved in diversionary activities, including gardening, rather than being confined to rooms.

SOCIAL EFFECTS OF INNER-CITY GARDENING

New York City Housing Authority

Through experiences with urban gardening programs in low-income areas, the author has found evidence that an intimate association with plants can stimulate beneficial psychological and sociological responses (Lewis, 1972, 1973). The conclusions drawn from these experiences are presented in this paper. Since these conclusions lack the benefit of behavioral expertise (the author is a horticulturist), it is hoped they will indicate an area of man-environment response worthy of the attention of researchers in behavioral disciplines.

From 1963 until 1972 the author served as judge and advisor to the New York City Housing Authority Tenant Garden Contest. Originally conceived as a means of promoting better communication between tenant and management, the contest, year after year, exceeds the expectations set for it. Any group of tenants wishing to garden may apply to the authority, which provides them with a garden site on the grounds of their project, manpower to turn over the ground, twenty-five dollars for the purchase of seeds, plants, tools and fertilizer, and a gardening manual and other instructional materials for each participating group. All phases of design, planting and maintenance are the responsibility of the sponsoring group—a full summer's activity. The gardens are judged in August, followed by a prize-awards ceremony in September. The gardening activity appears to be a simple amenity, bringing beautification to depressed areas. Flowers in the ghetto are the obvious result, but deeper meanings are revealed in new attitudes and social patterns resulting from the gardening.

Sponsoring groups represent formal organizations such as Boy Scouts, senior citizen clubs or casual associations of neighbors participating together in their garden. Gardeners include a wide range of ages and all ethnic elements of the population. The group requirement for garden sponsorship assures new opportunities for social interaction.

The large number of gardens intact at judging despite normally widespread vandalism attests to the ingenuity of sponsoring groups. Inquiry reveals several methods used to outwit vandals. One group said they knew who the troublemakers were and had assigned to them the job of guarding the gardens. Result: no more vandalism. Other systems included the stationing of lookouts in high-rise buildings, or setting up regularly assigned patrols of neighbors to sit and guard the gardens. No one asked for police protection. It is important to note that the groups, through knowledge of their social milieu, were able to devise cooperative ways of protecting their communal work. When gardens were vandalized, immediate replanting of the flowers was the best antidote to further depredations.

Other expressions of social involvement are revealed in the concept of the garden as a special place, where graduation and wedding pictures are taken and where one meets to talk with friends. Gardeners and residents of a project are proud of their display, and each tries to convince judges that his entry should win. Where gardens exist, less debris litters the lawn and groundsmen are urged to provide superior maintenance of the surrounding area.

Gardeners' personal expressions, either verbal or written, reveal their individual involvement in the garden. A gentle woman with a Spanish accent stood by her garden, and when asked why she grew it, said simply, "They told me you couldn't grow flowers on Avenue D, but I wanted to try. Now you should see the old folks come out every day to enjoy the flowers." Another contestant said, "This is the first creative thing I have done in my life," and added that she had gone to the library to study books on gardening. Similar expressions of personal response are revealed in letters received by the housing authority. Here

Photo: N.Y.C. Housing Authority

Neighborly cooperation in tending gardens brought new opportunities for social interaction.

is an example: "...what is more important is everyone getting to know each other, everyone smiles and discusses our garden. They worry over too much rain, they're all so pleased that the children are interested in caring, not destroying. From early morning till late at night you can see neighbors leaning over the garden fence. It has become the center spot of our court where everyone is a friend."

Underlying these expressions is a deep pride of accomplishment by the gardening group. Where there are gardens, vandalism is reduced outside and often inside the buildings. Where landscape plantings installed by the authority were previously vandalized, after several years of the garden contest, tenant groups requested that they be allowed to assist in landscaping the buildings. Tenants collected money to plant spring flowering gardens which would bloom in advance of the summer contest gardens. They formed garden clubs and requested a winter contest for windowsill plants.

A meaningful insight was gained while judging a Japanese-inspired garden, complete with pond, bridge, stones and walks constructed of bricks, cinder blocks and scrap lumber. It was the entry of a teenage group, members of a street gang who were guided into the contest by a social worker. He said that the boys had worked diligently, bringing building materials from across the city to construct the paths and edge the beds. Maintenance was meticulous and their pride was obvious. Each of these boys had a police record.

Philadelphia Window Box Program

Effectiveness of the gardening technique is not dependent on physical urban structure. A Philadelphia window box program in neighborhoods of privately owned row-houses clearly demonstrates human responses to plants. Sponsored by the Neighborhood Garden Association, the program makes window boxes and plants available to any block in which eighty-five percent of the residents sign up. The only requirement is that they maintain their window box gardens for two years. The window boxes spark interesting spontaneous activities by residents of the block. Streets are cleaned; curbs, tree trunks,

and door steps whitewashed; houses cleaned and painted; curtains hung in windows, and debris-laden lots cleared and replaced with playgrounds or gardens. None of these activities are prescribed in contest rules. This program, started in 1953 by Louise Bush-Brown, is now carried out in five hundred blocks annually.

Comments by gardeners again underscore the human involvement. "Before, it was just a house, now it looks like a home." "I've lived on this block for fifteen years. It's so nice to come to know the names as well as the faces of the other people on the block. I never knew them before." "This was the most dumpified place I had ever seen. Now it even smells good."

Chicago Housing Authority

In 1974 the Chicago Housing Authority sponsored its first annual Vegetable and Flower Garden Contest, which allowed tenants to garden on plots adjacent to their buildings. Results were similar to those of other cities: Gardens bloomed in low-income areas and tenants exhibited great pride in their accomplishments.

At Robert Taylor Homes, a complex of impersonal high-rise apartment structures, the gardens lead to an unusual expression of individual pride. At a building with a red and white flowered garden, tenants decided to paint chains along walkways, benches and entrance pillars to the building in colors to match their garden. At an adjacent building, the same decorating activity took place, but in blue and white to match their garden color scheme. The painting activity quickly spread through the whole group of buildings with walls adjacent to building entrances being painted with huge geometric or pictorial murals. The decorations were extremely well conceived and executed, but were unsigned. C.H.A. regulations do not permit painting on the exteriors of buildings. These paintings created a highly visible, personal identity for each building. It was as though the gardeners had found a new personal identity in their gardens and wished to express it in larger terms. During the ensuing year no graffiti appeared on the painted walls.

The Chicago Garden Contest brought people together in a cooperative venture particularly in the large group-sponsored vegetable gardens where neighbors worked together all summer long. At the close of the season most developments sponsored harvest dinners at which residents shared their garden bounty.

Photo: N.Y.C. Housing Authority

Neighbors work together to fight rising food costs by growing vegetables. About forty percent of the total budget of a low-income family is used for food.

Photo: N.Y.C. Housing Authority

Ingenuity is a valuable asset in creating a garden. These Taylor Homes youngsters are using tires for planters.

Chicago Urban Schools

Social and behavioral benefits of gardening are found not only in housing, but in other urban situations. In Chicago, the number of broken windows at the Benjamin Raymond School has decreased yearly since establishment of a student-maintained garden. The garden has also led to the appointment of a full-time naturalist on the staff and varied gardening projects in the classroom. Plants grown by the children and sold at their annual sale bring greenery and flowers to adjacent public-housing projects (Beatty, 1974).

Displays at the Chicago Flower Show, sponsored by inner-city schools, reveal the interaction of child with environment. The "Scentuous Garden" of Austin High School in 1973 featured an artful sculpture, "Pollution in Bloom," which was constructed of mufflers, tailpipes, coil springs, and hub caps interlaced with hanging pots of plants and flowers. Their gazebo sitting area, complete with strobe lights, was fashioned from the body of a junked Volkswagen which they cleaned and painted. Its hood and engine areas, now planters, bore a profusion of flowering plants. Other displays feature terraria, bottle gardens, dried flower arrangements, and many more representations of classroom projects. The displays constantly reveal a wealth of unexpected creativity by inner-city children.

THERAPEUTIC AND REHABILITATIVE EFFECTS

In this country, over two hundred institutions — including mental, physical rehabilitation, geriatric, correctional, and mental retardation — use horticulture as an adjunct to diagnosis and treatment (McCandliss, n.d.). Three universities have four-year undergraduate curricula, and one offers a graduate program in horticultural therapy. Serving as a communication focus for all activities in this field is the National Council for Therapy and Rehabilitation Through Horticulture, at Mt. Vernon, Virginia, 22121.

Horticultural therapy combines the human response to plants with medical guidance to easy psychological problems and directs the retraining of muscle and spirit. Gardening techniques help

patients regain confidence in themselves, express hidden emotions, and gain social confidence in group activities. At physical rehabilitation institutions, simple tasks such as placing broken shards in the bottom of a pot, transplanting seedlings, or rooting cuttings are utilized diagnostic tests of a patient's progress or as activities to strengthen weak muscles.

What qualities of horticulture have proved beneficial to mentally or physically distressed patients? Andrew Barber, horticultural therapist at the Menninger Clinic, Topeka, Kansas, speaks about them: "Germination of seeds, vegetative growth, flowering and maturation have close parallels in the basic concepts of human development. Common gardening tasks as watering, fertilizing, and protecting plants from bad weather have human connotations. The physical structure of a greenhouse has been likened to a mother's womb and provides an atmosphere of security." He observes that some regressed patients have been helped in regaining touch with reality by activities centering around the greenhouse. Success in growing plants can give hope that problems in a patient's life can be dealt with in treatment (Barber, n.d.). Howard Brooks, therapist at the Institute of Rehabilitation Medicine in New York City observes, "There will be some patients who will be difficult to reach and motivate. Working with plants may provide an impetus and initiate a response. Something as simple as the growth of roots or a cutting suspended in a glass of water or a bud preparing to open may provide the key. One of the great advantages of gardening is that it is not a static activity; there is always something happening — a new sprout, shoot or leaf is forming, a flower is opening or fading and has to be removed. Then the cycle begins all over again." He tells us that for many patients who are totally dependent on others for assistance in even the smallest tasks, having a living thing depend on them for care and sustenance can give severely incapacitated patients the will to go on and an interest in the future (Brooks, 1973.)

Plants are alive and communicate life qualities to those who tend them. Since no living thing is static but is always changing, plants speak of a dynamic stability achieved through continuous change. The phases of growth from seedling to mature flowering plant follow a stable and orderly progression, not erratic and bizarre. They differ from life patterns in our technological society which respond rapidly to fads and other distractions and are subject to threats by new man-made terrors. The stability of plant growth indicates sustaining patterns in life. There is a certainty in knowing that a rose is a rose is indeed a rose—at all times in all places.

Plants offer time-clues to longer rhythms than the ones in which man races. They respond visibly to the sun in its daily course and signal the change of the seasons. It takes time for a cutting to grow roots, a seed to germinate, a leaf to open. These are plant-intrinsic rhythms set in the genes of the plant and not easily altered by man.

The feel of soil between fingers is something very basic, connecting one with all earth, even from a twenty-fifth floor apartment, hospital ward, or concrete -asphalt world. Through plants we are connected with surroundings that we may not even know; they provide a sense of natural place in non-natural surroundings. They tell us in an infinite variety of ways that beauty has not gone out of the world. Even death is perhaps more easily accommodated after seeing it as part of the total life cycle of plants.

Horticulture is concerned with the art and science of growing plants. The individual takes on an obligation when he grows a plant; the plant is dependent on the grower for its life and well-being. Watering, pinching, fertilizing and pruning—all the horticultural operations—are positive actions taken by the individual to keep his plant alive and healthy. The plant will respond with growth and flowering, giving tangible evidence of success for the grower.

Plants are non-threatening and non-discriminating in a world that is constantly judgmental. Plants respond to care, not the race, color, intellect or physical capacity of the gardener. Individuals with all their real and imagined handicaps can find in plants a first step to confidence, a friend who doesn't talk back. In growing plants, the individual is exerting his mastery over the environment, helping to create a new living entity, a garden, that can also bring pleasure to others. He finds he can change things, perhaps himself.

Many horticultural activities — such as sowing seeds, rooting cuttings and potting plants — require involuntary intense concentration. In a recent article, "Some Psychological Benefits of

Gardening," Rachel Kaplan states that this type of concentration produces a rest from the effort otherwise required for attention, and also provides rest from whatever worries and cares might be uppermost in a person's mind. She also states that plants and gardening are surrogates for the need to escape into nature: "Gardening plays a role in people's lives not unlike that played by more dramatic, more distant and less frequent encounters with nature.... The garden is a miniature, a slice of nature compressed in space, and a pattern of information compressed in time" (Kaplan, 1973).

Horticulture has other advantages. It can be carried out in a variety of situations ranging from a large garden to a single pot. It is adaptable to physical abilities ranging from the heavy work of spading to the simple task of filling a pot with soil. Desired conditions of temperature, light, water, etc. can be provided in facilities ranging from a bright greenhouse to a basement artificial light garden. Because of this wide range of adaptability, it can be matched to the specific needs and abilities of the individual.

SOCIAL AND BEHAVIORAL IMPLICATIONS

What do the foregoing examples of human response to plants mean? Are they unrelated activities or is there a common ground to all? What is the relationship between horticultural therapy in mental hospitals and physical rehabilitation centers and benefits of ghetto gardens in low-income housing? In terms of human values, what is the meaning of cleaned streets, painted houses, reduced vandalism and new neighborliness? What is there in gardening that has prompted the gardener to take these extra steps?

Dr. Edward Stainbrook, chairman of the Department of Human Behavior at the University of Southern California School of Medicine, gave some clues in a recent article, "Man's Psychic Need for Nature." He says, "An environment of ugliness, dilapidation, dirtiness, overbuild space, and lack of natural surroundings confirms the negative self-appraisal a person may have developed through other contacts with society. Self-esteem is the keystone to emotional well-being; a poor self-appraisal, among other factors, determines how one treats his surroundings and how destructive he will be toward himself and others. These factors set up a vicious cycle that is difficult to break" (Stainbrook, 1973).

For the inner-city resident, cut off from adequate means of self-identification and self-expression, his garden or window box seems to become a highly visible representation of himself. As his garden grows and his self-esteem is enhanced, particularly when others, often unknown, share its pleasure as they pass by. What starts as pride in gardens is expressed in other areas as reduced vandalism and litter, the cleaning and refurbishing of neighborhood buildings and surroundings. While gardening is usually pursued individually, it lends itself to group activities, providing settings for social interaction. Public housing gardens provide an opportunity for cooperation in design, planting and maintenance, methods for outwitting vandalism, use of gardens for meeting places and sites for picture-taking. In hospitals it provides a benevolent background for discussing birth, life and rejuvenation. The greenhouse or garden becomes the setting where interactions between patients are worked out.

Gardens enhance the proprietary sense of territoriality, providing residents of public housing an opportunity for a private statement on public grounds. Professor Oscar Newman, in his study of crime in public housing, states that any activity which brings residents out onto the grounds and extends the sense of private community to public areas will establish a sense of territoriality which will help safeguard the building. Activity areas where people sit and talk, repair their autos or wash and dry their clothes are under casual surveillance by concerned family members and thus establish a sense of territoriality (Newman, 1972). Though Newman's study was conducted at the projects of the N.Y.C.H.A., he did not investigate the effect of the tenant gardening contest in establishing territoriality.

Matthew Dumont is cited (Lieberman, 1970) as identifying three distinct needs underlying mental health of cities: (1) stimulation to break the monotony of daily life; (2) a sense of community which arises not because people are forced to live together, but from some spontaneous action; (3) a sense of mastery of the environment, reassuring the individual that he has a degree of control over what happens around him and is not a helpless cog in the overwhelming

Photo: N.Y.C. Housing Authority

Attractive gardens provide special places for special occasions.

machinery of living. Inner-city gardening speaks to all of these needs.

In studying people-plant interactions, we focus on the *process* of horticulture rather than its end product, the plant. The process of horticulture occurs over a time span during which an individual is intimately concerned with plants. It is a more personal, intense involvement than that experienced by the person looking at the plants surrounding him in a park, garden or natural area (Lewis, 1976). Discovering the perceptual meanings of these vegetation settings is the subject of a body of ongoing research aimed at understanding the kinds of environment necessary for man's psychological well-being. Kaplan and Wendt say, "If indeed man is likely to go out of his mind before he runs out of any of the traditional basic requirements of life, then a close look at the conditions and environments that are sanity-preserving and even satisfaction-enhancing seems essential. One facet of this issue is simply that of what man likes and why" (Kaplan and Wendt, 1972). What might be learned if equal effort were focused on understanding the human response to an intimate association with plants? On the basis of empirical evidence presented, the process of horticulture can indeed be sanity-preserving and satisfaction-enhancing. Will this man-environment relationship be understood and utilized for *prevention* and well as *alleviation* of human stress?

One of the goals of the American Horticultural Society's People-Plant Program[1] is to bring these activities to the attention of social and behavioral researchers to stimulate their pursuit of research in this area. First steps in this direction are being taken by Rachel Kaplan, professor of environmental psychology at the University of Michigan who is initiating a study of the kinds of rewards and benefits different groups of people find in gardening. Through sampling and statistical techniques, investigations will bring factual substantiation to the subjective responses of people intimately involved with plants.

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[1]The American Horticultural Society's People-Plant Program was initiated under a grant from Mrs. Enid A. Haupt of New York City.

(continued on p. 23)

Her Garden Was Her Delight*

The Garden of Elizabeth M. Blackford (Mrs. John Minor)

VIRGINIA BLACKFORD MORRIS

In 1946 Mrs. Blackford purchased a four-acre plot of ground located on the west side of Mercer Island, four miles south of the floating bridge. There was a small cottage on the property and the area in back of the cottage to the road had been previously cleared for a vegetable garden. The rest of the land was in virgin woods except for a lovely curved road, designed by Mr. Holmdahl. Mr. Ken Kelly worked with Mrs. Blackford during the first phase of developing her garden. It was due to his insistance that she had some lawn. He said her garden would lack a focus point without it, and he was right. Otherwise, she had very definite opinions which were incorporated. No bulldozer was allowed on the property so it was all cleared by hand. Mrs. Blackford was not a novice gardener, since she had developed three other gardens in Seattle, but they were large perennial gardens. Her garden on Mercer Island was an informal woodsy one.

Mrs. Blackford, recently widowed, was almost sixty when she started her new garden. She did all of the work except for Roy, one of Mr. Kelley's original workmen, who worked for her every Saturday for the next 23 years. During her first years on the island, the deer were quite a problem. One time she spread rock salt on the road to keep down the weeds and succeeded in attracting an unusually large number of deer; one large buck even lowered his horns at her when she said "Shoo!" Large quantities of well rotted cow manure, compost and warm polluted water from the lake were the secret of her success she always maintained. Her garden was beautifully kept at all times. One of her gardener friends said no weed would dare to grow in her garden, but, of course, they did and were removed promptly. The biggest jobs in the garden, she maintained, were gathering the seed pods from the rhododendrons and azaleas (not one was allowed to remain), watering (she kept 8 hoses busy), and raking up the leaves (her garden was dotted with large big leaf maples). Primroses were a particular pet of hers. Every primrose that was in the sun was dug and moved into the shade for the summer and then replanted in the fall.

There was a large vegetable garden in back of the house. Her first year she planted 1000 naturalized daffodils and as these multiplied over the years. She loved to cut large armloads and give them away. These which were planted in rows at the top of the vegetable garden, and her lovely roses, were planted strictly for cutting.

About eight years after the first phase of her garden was developed, she opened up about an acre of woods to plant a real woodsy garden. There were paths wandering through the woods and much native material was incorporated with beautiful plantings of purchased material. Several well rotted logs were covered with creeping dogwood. These were sheets of white in the late spring. She used a large planting of *Pieris forrestii*, which was spectacular in the spring. In a very boggy place in the woods she planted skunk cabbage which thrived on the run off from all the manure used and the leaves were positively tropical in size and the blooms spectacular in March. In another wet spot she used a sheet of pink candelarbra primroses and in another was a large planting of Japanese iris. Spirea, astilbe and daylilies were also planted in large swaths. Certain combinations of plant material were outstanding. Under a native dogwood she planted *R. augustinii,* R. 'Blue Diamond,' and a wide border of yellow primroses. Another border of blue primroses was used in front of a large planting of pink azaleas. Along the road leading down into the woods was a spectacular planting of orange mollis azaleas bordered by ajuga. Many eastern dogwood, and various magnolias grew to enormous size. Under one large maple, on which was hung a lovely Italian madonna, was a beauti-

*The first of a series of articles prepared by members of the Frances MacBride Arboretum Unit #41 for presentation in their meetings.

ful planting of the small cyclamen. Mrs. Blackford planted not only for spring blooms which blended into a riot of color, but she also considered her foliage textures and planned for a spectacular show of fall color.

One friend said she painted pictures with her plants, following all of the rules that were taught in art class, and it was the most peaceful garden she had ever been in. Another friend said it was a garden which made you feel completely at home.

One time Mrs. Blackford was showing an out-of-town guest through her garden and she noticed a plant which was not doing very well and said, "You don't look very happy; I will have to move you." Later the friend wrote Mrs. B. a note and said how much she had enjoyed seeing all of her "happy" plants.

Many groups enjoyed Mrs. Blackford's garden as it was her pleasure to show it to anyone who was interested. Also a number of new gardeners were entertained at "cutting parties" in August; thus there are a number of "children" and "grandchildren" of her plant material in existence in the Pacific Northwest.

Mrs. Blackford died in 1967 and her garden is gone now, but many remember its peace and beauty.

The Garden in the Glen

GRACE SWABEY

The dictionary defines a glen as a small narrow secluded valley. A garden in the glen seems the most appropriate description of Marie Manthey's garden. Her land comprises ten acres, most of it situated on the steep north and south hillsides, leaving very little flat land between for house and cultivated garden.

The house stands on the site of the old cook house of a logging camp that felled the giant cedar trees seventy-five years ago. Teams of oxen then dragged the logs to Lake Washington for transportation to Seattle mills. Marie's husband purchased the property in 1920, but it was not until 1941 that Marie made it her permanent residence.

The most outstanding feature of her garden was the creek. It was situated on the south side of the driveway a few feet below the road. The stream flowed due east through Marie's property to join Juanita Creek. The vine maples that grew along the banks produced gorgeous autumn colors. To the maidenhair ferns and trillium, Marie added many primroses and ground covers which gave bright colors in the spring. She increased nature's supply of trillium by growing many more plants from seed. In early morning when the deer came down from the hill to drink at the creek, they nipped off the trillium blossoms. Deer were not welcome visitors to the garden. At the creek level was a well with a moss covered roof and an old oaken bucket. Five rustic bridges spanned the creek enabling one to cross over to the south hillside which rose precipitately for over two hundred feet. It was heavily wooded with large maple trees interspersed with clumps of sword ferns. In ascending to the top one crossed two old skid roads which lead to the top of Finn Hill.

The house stands on the northside of the driveway. Above it rises a hill extending up to the Finn Hill road. Because it was impractical to have a lawn, Marie used low-growing heather in place of grass. *Erica herbacea* 'Springwood White' (formerly *Erica carnea*) flourished in front of the house and *E. h.* 'King George' and other heathers on the slopes. Marie grew all these heathers herself from cuttings that she had taken.

On the northern hillside, back of the house there was much native plant material such as salal, *Mahonia nervosa*, red huckleberry, *Vaccinium parvifoluim*, clustered between the scattered firs and dogwood. Many charming paths were made and rhododendrons added to the native growth. The fir trees were supplemented with white birch and flowering trees with pink blossoms such as *Prunus pisardi* spaced about. The *Euonymus alatus* and *E. europaeus* furnished red and pink berries. Along the driveway were large skimmia shrubs laden with red berries to brighten the winter garden.

The main garden was replete with azaleas and rhododendrons that Mrs. McBride had grown in her nursery at the Hollywood Farm. In May these blossoms made a wonderful showing along the paths.

Many people made periodic visits to "The Garden in the Glen" during the years. Visitors were always welcome and generously rewarded with cuttings and seedlings. All the neighbors have large white birch trees supplied from Marie's nursery as well as heather and shrubs.

Have You Really Looked?

*CLARENCE E. LEWIS**

Most people overlook something very interesting in the plant world: It is the real essence of spring, when plants are arousing from a sleepy winter period — when flower buds are beginning to break, and the growth buds are pushing their way through the protective scales that have been so kind to them all winter.

As new growth begins to become a part of the plant world, we notice that many leaves, stems and even flowers have an unusual amount of hairiness to protect them at their birth. This is the time of year when these plant parts are in need of having and retaining their high moisture content. The wooly or hairy covering and the dusty covering of some spruce are the instruments which lower the rate of transpiration.

The rate of transpiration is a most important consideration at this time of year. When rhododendrons are pruned back to allow for a denser plant and new growth becomes apparent, now, and all during the first year, water is about the most essential need of this young growth. Any delay in watering, if there is even a minimal lack of rainfall, may cause the new leaves and stems to wilt rapidly—so much so that this new growth cannot be revived.

Three types of buds are waiting to show activity. Some buds produce only flowers, a second produces both stem growth and leaves, and the third flowers, stems and leaves. A rhododendron usually shows flower buds and growth and leaf buds. Not many plants have buds that produce all three. The Nannyberry, *Viburnum lentago*, is in the last class, the buds of which are terminal.

Some rhododendrons provide very interesting new foliage. Fresh young leaves of *Rhododendron shepherdii*, which point upward, are supplemented by the bright red bud scales that become elongated. The long red bud scales compliment the fresh, partially folded, green leaves, which are bright green on the upper surface and very light green underneath.

The undersurfaces of the new leaves and young stems of *Rhododendron yakusimanum* have more of an intense rusty appearance than the older leaves and stems of *R. smirnowii*. These are also very attractive — not colorful, but with a thick gray coating that lets you know this new growth is not going to have a transpiration problem. Another interesting rhododendron is *R. lanigerum*, whose erect leaves and young stems are smothered with gray hairs. It is so unusual, with the new growth stretching vertically, that it will entertain more than a passing glance.

The Pieris produce about the brightest colored new leaves of all the broadleaved evergreens. *Pieris formosa* 'Forrestii' shows terminal new leaves that are a showy red, and this coloration can last six weeks, maybe more, if the weather does not become too warm. Also, a selection of the Japanese Andromeda, *Pieris japonica*, 'Scarlet O'Hara,' has glossy, rich, red, new terminal leaves, which should be a welcome addition to any garden.

Two other broadleaved evergreens which initiate colorful spring foliage are *Leucothoe fontanesiana* and *Mahonia aquifolium*. The first has a variety of colors, but most of the new leaf coloration is bronze or coppery, while Mahonia shows a variety of colors, bronze to red, and maybe a little blue. This foliage coloration is augmented by leaves which have a high gloss. Both often are better plants if not allowed to get too leggy—a pair of pruning shears in the right hands makes them more useful.

Some of the selections of *Rhododendron fortunei* have an interesting contribution in that the petioles begin with an attractive lavender to purple coloration, and this continues into the summer season. The P.J.M. Rhododendrons hold their fall and winter bronze foliage color well into the spring.

There are other plants with colorful spring foliage. The European Hornbeam, *Carpinus betulus* 'Purpurea,' has end leaves that show an interesting purple color mixed with the deep and prominent veination. The purple color doesn't persist too long, but long enough to add a nice

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*Clarence E. Lewis is Professor Emeritus, Michigan State University. He is a frequent contributor to *American Nurseryman* and *American Forestry*.

touch to the landscape. The new growth of Copper Beech, *Fagus sylvatica* 'Cuprea' is fantastic, and worth a long look.

Many maples show not only interesting colors in their new leaves, but unusual figures that almost seem like a praying mantis. The bronze coloration of the fresh leaves of Paperbark Maple, *Acer griseum*, eventually becomes green, but the early bronze appearance, along with the distinct hairiness, makes it something worth observing. The Japanese Maple bud scales break to allow the new young leaves to appear which, along with the persistent red bud scales, give an insectivorous reaction. The Full-moon Maple, *Acer japonica*, does the same thing, particularly the cut-leaf selections.

The fresh new leaves of some plants are rewarding to an interested observer because of the pronounced veination. The Japanese and Korean Stewartias, *Stewartia pseudo-camellia* and *Stewartia koreana*, have an unusual green color which, coupled with the very prominent veining, makes for something very special. Others that fall in this same interest category are the Japanese Hornbeam, *Carpinus japonica*, European Hornbeam, *Carpinus betulus*, and both the American and European Beech, *Fagus grandifolia* and *Fagus sylvatica*. To me, the Japanese Hornbeam is truly outstanding in this respect.

When you see plants with prominent veining, get in back of them with the sunlight showing through and notice the beautiful arrangement of veins. It is especially true of the Japanese Hornbeam. Don't view without your camera!

If you would like to see something really artistic, watch the new pinnately compound leaves of the Golden-rain Tree, *Koelreuteria paniculata*, gradually appear. The coloration is at first a light coppery tone, and eventually green. When you look at them, close out all other nearby interests, and concentrate on the Golden-rain Tree, alone.

Before the leaves are out, or partially expanded, study the structure and artistic branching of the dogwoods, *Cornus controversa* (Giant Dogwood), *Cornus florida* (Flowering Dogwood), and *Cornus nuttallii* (Pacific Dogwood). Do not forget *Corylus avellana* 'Contorta' either. These are just a few plants that produce an artistic branching structure. The dogwoods, particularly *Cornus controversa*, show branches that are like great arms reaching out and eventually slightly upward at the tip ends. They do not have terminal growth, so typical of most trees, because side branches are constantly taking the lead. This is known as sympodial branching, and shows an irregular horizontal branching habit.

After looking at the dogwoods, then get underneath a fairly large Katsura Tree, *Cercidiphyllum japonicum,* and notice how the end branches gracefully curve in a most artistic manner.

I am also thrilled each spring as the flower buds of American Redbud, *Cercis canadensis,* Chinese Redbud, *Cercis chinensis*, and Judas Tree, *Cercis siliquastrum*, break tight against the stems. The White American Redbud, *Cercis canadensis* Alba,' is particularly intriguing, since the flowers are white against a very dark gray to black stem.

The first flowers to observe are the Chinese Witch-hazel, *Hamamelis mollis*, (and its cultivars), Japanese Witch-hazel, *Hamamelis japonica*, and the Vernal Witch-hazel, *Hamamelis vernalis*. They may appear as early as January in some years or February during others. The Red Maple, *Acer rubrum*, has early red spring flowers that brighten any surrounding, not large, but a good addition to the spring pageant. And, don't forget the birch catkins that hang down to create an entirely different aesthetic pattern. The yellow pollen which is emitted from them provides a picture that is different from any other plant flower.

Flower buds of rhododendrons, just before they fully open, are not spectacular, but certainly influence your curiosity and interest. Many of these, particularly the Exbury and Mollis Hybrids, have a liberal coating of hair.

Fruits are evident also during this tantalizing spring season. The hollies are the ones making the main contribution. It is amazing that fruits which appeared the previous fall are still very firm and colorful on such hollies as English Holly, *Ilex aquifolium*, American Holly, *Ilex opaca*, and Chinese Holly, *Ilex cornuta*. They are usually present even after the new flowers appear.

Some of the narrow leaved evergreens are interesting to watch, particularly spruce, as the new needles push the bud scales further and further out until the compressed leaves expand and release these scales.

A most stimulating experience is to watch the

(continued on p. 16)

Rhododendron wiltoni

Photo: Lawrence Pierce

Acer circinnatum

Pieris japonica 'Scarlet O'Hara'

Stewartia pseudocamellia

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EDITOR, ARBORETUM BULLETIN
Arboretum Foundation
University of Washington
Seattle, WA 98195

This is YOUR Arboretum Bulletin! *The Editorial Board continually strives to bring you a useful and informative publication. We would like to know your reactions to the* Bulletin *and what you would like to find in future* Bulletins. *Your participation in this project will help us provide the kind of information and features which you will find helpful and stimulating.*

Please complete and return this questionnaire by May 15. We hope that you will feel free to add any other comments you may wish to make. Thank you for sharing your ideas with us. We look forward to hearing from you.

Doris Butler, Editor
Arboretum Bulletin

1. Do you read the *Bulletin:*
   ☐ From cover to cover ☐ Partially ☐ Skim

2. Rate the type of *Bulletin* articles you find most interesting and useful from one to five (1 = highest rating).
   a. Technical and Research Articles (i.e. Frost Research) _____
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   f. Unit Conversations _____
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   h. Arboretum Spotlight _____

4. How often do you read the Book Reviews?
   ☐ Always ☐ Occasionally

5. Do you find the type used for Book Reviews
   ☐ Readable ☐ Too small ☐ Too light

6. What topics would you like to have covered in the *Bulletin*?

7. What suggestions do you have for improving the *Bulletin* (Contents, layout, type, illustrations, etc.)?

8. Would you be interested in purchasing old issues of the *Bulletin*?
   ☐ Partial sets ☐ Individual copies

9. Would you like to contribute articles, photographs or line drawings, poems to the *Bulletin*?

Name _____ Phone _____

Address _____ Zip _____

ADDITIONAL COMMENTS:

Have You Really Looked?

Fagus sylvatica cuprea

Prunus serrula

Photo: U. of W. Arboretum

Photos: (except as noted) Clarence Lewis

U. of W. Arboretum Classes

IDENTIFICATION OF NATIVE TREES AND SHRUBS. Mr. James Long, forest ecologist, will conduct this field class on identification. Over 40 species of common trees, shrubs, and ferns native to western Washington will be covered. Each section limited to 15; meet at Arboretum office. Saturdays, May 8, 15, 22, 29; 4 sessions, $10. Section A: 10 a.m. - 12 noon. Section B: 12 noon - 2 p.m.

HOUSE PLANTS. Mr. Richard van Klaveren, Arboretum propagator, will discuss indoor plants. Topics covered include identification, techniques of propagation, and care. Materials furnished. Arboretum greenhouse; class limited to 15. Thursdays, May 13, 20, 27; 7-9:30 p.m. 3 sessions, $15.

SUMMER CUTTINGS. Mr. van Klaveren will teach seasonal techniques propagating woody plants. Materials furnished. Arboretum greenhouse; class limited to 15. Saturdays, June 5 & 12; 9:30-12 noon. 2 sessions, $12.

To register, send check made payable to the University of Washington to:

Arboretum Courses
Anderson Hall (AR-10)
University of Washington
Seattle, WA 98195.

For further information, call 543-2730.

◆

REALLY LOOKED?

(continued from p. 13)

fresh green leaves appear at the end of the spurs of Larch, *Larix*, and False Larch, *Pseudolarix amabilis*. I do not know of any other tree whose new leaves possess such a lively green color. It is remarkable how long these spurs become, sometimes 2 inches; the new growth always appearing from their tips. I think that the False Larch, or Golden Larch, is one of the most picturesque of all trees. *Ginkgo biloba* also has this spur-like growth, and how wonderful it is to watch those fan-like leaves become a reality.

Spring is also the time of year to study the colorful barks of such trees as the evergreens, Pacific Madrone, *Arbutus menziesii,* and Strawberry Tree, *Arbutus unedo*. The deciduous Serrula Cherry, *Prunus serrula,* Paperbark Maple, *Acer griseum*, Japanese Stewartia, *Stewartia pseudocamellia,* and Korean Stewartia, *Stewartia koreana* are outstanding, too. These trees are fantastic 365 days of every year.

Let me close this brief discussion by making the following suggestion: As the flower bud scales of the Pacific Dogwood, *Cornus nuttallii,* and the Flowering Dogwood, *cornus florida*, begin to open in the spring, watch them each day, and even photograph them. It is truly one of the delights of a new plant world.

This is your Arboretum kept alive by your support

We are pleased to welcome the following new members (December 1, 1975 through January 31, 1976):

Contributing — John J. Rountree. *Sustaining* — John E. Bryan, Mrs. Mark A. Johnson, Mrs. Robert Kellar. *Annual* — Mr. & Mrs. Robert Alsdorf, Mrs. Ronald E. Ames, Mrs. Robert H. Barden, Jr., Ms. Lisa Brewer, Mrs. R. S. Davidson, Jr., Mrs. John F. Duncan, Mrs. Dixon Eagle, Mrs. Charles Ferguson, Mike Fowler, Robert L. Furniss, Mrs. John M. Harding, Mrs. Grant Hildebrand, Mrs. John Hogness, Mrs. Charles Hollenbeck, Mrs. James C. Hunt, Jr., Mrs. Gary Klees, Mr. & Mrs. H. W. Lawson, Mrs. Floie Lee, Mrs. Christine Loughlin, Mrs. Robert L. MacLean, Mrs. Peter McTavish, Debbie L. Nelson, Mrs. Harry Nilsen, Mrs. William N. Picketts, John Roake, Mrs. Lucile R. St. Louis, Mrs. Charles L. Spence, Bonnie Talkington, Mrs. Walter Trace, Mrs. Alberta Tuttle, University of Colorado, Mrs. D. L. Wells, Betty Jean Williams.

We are also grateful to the following who have increased their dues to: *Sponsor* — Stimson Timber Foundation. *Sustaining* — Mrs. S. J. Coon, Mrs. Jay Decker, Mrs. Albert L. Pederson, Mrs. Philip Peoples, Mrs. Victorian Sivertz, Mrs. Kirby D. Walker.

Edmonds Community College

COMMUNITY SERVICE SHORT COURSES

If you enjoy working outdoors with plants, ornamental horticulture is ideal for you. If you have a green thumb, try our courses in plant breeding, gardening and plant propagation. If you want to express your artistic abilities, investigate our courses in floral design, landscape design and interior landscaping. If you are fascinated by plants in general, explore plant identification, house plants and specialty plants (rhododendrons; annuals, bulbs, and perennials; rock gardens and water plants). Horticulture is as contagious as childhood diseases and love. Join the plant addicts! For further information contact: Walt Bubelis 775-4444, ext. 257 or Dennis Thompson 775-4444, ext. 335.

BEGINNING PLANT BREEDING (HORT 030 S) An introductory course in how to hybridize plants. The lecture will include basic genetic theory, flower parts, and how to select breeding stock. The laboratory will apply these principles; hybridizing such plants as irises, primroses, and geraniums. It's easy and it's fun to produce your own new plant selections! Fee $10.00 + $5.00, 5 meetings, Monday nights 6:30-8:20 p.m., C-105, Instructor Thompson.

POISONOUS PLANTS (HORT 016 S) This call will identify the toxic nature and cultivated plants of western Washington. It will include photographs and herbarium specimens of the plants and a brief discussion of how dangerous these plants are. Lore and fact about our "sinister" green friends. Fee $3.00, 2 meetings, Tuesday nights 6:30-9:20 p.m., April 27 and May 4, C-105, Instructor Thompson.

EDIBLE ORNAMENTALS (HORT 014 S) How to use fruits and vegetables as design elements in your landscape and what ornamental plants have edible parts are covered in this class. Food and fun in your flower beds. Fee $3.00, 2 meetings, Thursday nights 6:30-9:20 p.m., May 20 and June 3, C-105, Instructor Thompson.

Notes and Comments

For the first time in several years the Arboretum Office will be open on Sundays from 10:00 A.M. to 5:00 P.M., beginning March 29 and continuing through June 27. The Information Desk will be manned by trained volunteers.

Sally Dickman has replaced Anne Switten as Secretary in the Arboretum Office. Anne left December 22, 1975 to return to teaching.

Dirk Van Klaveren, Arboretum Propagator, was named "Citizen of the Day" for December 15, 1975 by Radio Station KIXI and Northwest Airlines. The recognition was accompanied by continuing radio announcements throughout the day and evening telling of his contributions to the community. Congratulations!

Esquico Narro, Gardener Lead and non-official public relations man for the Arboretum, retired January 31, 1976. He will continue as an instructor as needed for various educational programs. Chico was replaced by V. Dean Powell.

FROM A COLLECTOR'S NOTEBOOK

BRIAN O. MULLIGAN

Photo: B. O. Mulligan

The pendulous red flowers of *Crinodendron hookerianum* resemble small lanterns.

1. *Crinodendron hookerianum (Tricuspidaria lanceolata)*

This large evergreen shrub or small tree is frequently seen in gardens in western Scotland, Ireland and southwest England, wherever the influence of the sea atmosphere can be felt. In Cornwall it is sometimes used as a tall hedge; on the east side of Ireland and elsewhere it may be placed against a north wall for shade and shelter against late spring frosts which can in some years be devastating to early growth or flowers.

The particular plant illustrated was found in an old garden near Enniskillen, Co., Fermanagh, North Ireland, some thirty miles inland from the Atlantic Ocean at Donegal Bay. Here it had been placed against the house wall and was flowering profusely in early June, but would no doubt have thrived almost as well there if it had been in a semi-shaded woodland situation. Local rainfall is probably in the range of 70-80 inches annually, or even more. It has been grown successfully at Aberdeen, Washington, where the average annual rainfall is somewhat greater than 80 inches. At this Arboretum it has been winter-killed more than once before it had attained much size. In private gardens where it has been given special protection during cold spells, it has been grown to flowering size.

The pendent, rich red flowers shaped like small lanterns, are highly decorative, especially when produced in quantity on old plants, and are well setoff by the narrow, dark green slightly toothed leaves. For anyone living in a maritime climate this would be a desirable and pleasing addition to a garden, but one must remember that it can attain 15 or more feet in height and therefore needs some space for development.

It is native to southern Chile from Valdivia to the island of Chiloe and was named by C. Gay in 1845 in honor of Sir W. J. Hooker, botanist, artist, author, and director of the Royal Botanical Gardens, Kew (1841-1865). Earlier, Hooker illustrated it as *Crinodendron patagua*, the second species of this small genus, which has white instead of red flowers and quite different foliage.

2. *Fraxinus ornus* — Flowering or Manna Ash

In the once famous garden at Headfort House, Kells, Co. Meath, Ireland, about 36 miles northwest of Dublin, we found a healthy young tree of this most ornamental species in full bloom inside the old walled garden in early June 1975.

Native to southern Europe, extending from Spain eastward to Turkey and north to Austria and Czechoslovakia, it has been cultivated in

Photo: B. O. Mulligan

The loose panicles of fragrant white flowers on *Fraxinus ornus* make it a valuable tree.

gardens and parks in Europe for more than 250 years. It is valued for its sturdy habit, moderate size (50-70 feet, occasionally larger) and adaptability to city conditions, and especially for its attractive and prolific flowering in May when covered with loose panicles of small but fragrant white flowers. It is one of the few ashes which have petals in the flowers.

The leaves are typically ash-like, with two to four pairs of leaflets, downy at the point of insertion on the petiole. In some individual trees and perhaps in certain situations there may be a purplish coloring of the foliage in autumn, but this cannot be always guaranteed although attractive when it does appear.

There are examples of this species used successfully as a street tree on West McGraw St. at 7th Avenue West in Seattle. In the Arboretum there are three trees in the ash collection between Azalea Way and Lake Washington Boulevard, one of which flowered in May 1969, four years after planting. Two others can be seen in the old nursery area east of Woodland Garden and Arboretum Drive; one of these began flowering in 1959 at the age of twelve years, so they may take a little longer than one of our native western dogwoods *(Cornus nuttallii)* to start blooming.

BRIAN O. MULLIGAN

CORRECTION

Drymus winteri var. *latifolia*
(AB: 4/75 p. 9)

A private communication to the author from Dr. John M. Fogg, Jr., director of the Arboretum of the Barnes Foundation, near Philadelphia, Pennsylvania, has indicated the Forsters mentioned in the article were father and son, not brothers, and that the son, J. G. A. Forster, was responsible for writing an account of the voyage which was published in London in 1777 prior to the official account from the Board of Admiralty.

A search for additional details of the journey was undertaken. In the University of Washington library, Special Collections Division, J. G. A. Forster's book, recently translated from the original German into English by Robert L. Kahn (Berlin, 1968), points out that the father was appointed naturalist for this voyage "in order to collect, describe, and draw the objects of natural history which we might expect to meet with during our course" with the son as assistant.

Having crossed the South Pacific from New Zealand to southern Chile in 41 days, they went on shore on "the Coast of Desolation" in Tierra del Fuego at latitude 55° south on December 21, 1774, and found plants of the *Drimys*.

It is worth noting also that the distribution of this plant in coastal southern Chile is very similar

(continued on p. 20)

Arboretum Spotlight

Pinus armandii — Chinese white pine

Named for Father Armand David, its discoverer, by the botanist Adrien Franchet in 1885, *Pinus armandii* was first introduced to France in 1895 by M. Maurice de Vilmorin at Les Barres and to England two years later by Dr. Augustine Henry. After 74 years, two of these original trees at Kew in 1971 were 60 and 52 feet tall respectively. The coning branch illustrated on the cover was photographed in 1973 at the Arboretum des Barres, France, the seed source for the oldest plants now growing in the Washington Park Arboretum. Planted in 1947 and 1948 on Foster's Island and near the Museum of History and Industry, all suffered severly in the early freeze of November 1955, the latter group of three trees being killed. Of the two trees now remaining on Foster's Island, the larger is approximately forty feet tall and seven inches in diameter at breast height. A younger tree, raised from seeds received from the Botanic Garden at Geneva, Switzerland in 1957 and planted on the top of the hill south of the greenhouses in 1965, is now about fifteen feet tall. It first produced cones in 1974. Another, acquired as a plant in 1954 from the Institute of Forest Genetics, Placerville, California, is located on the east side of the Pinetum.

The branching habit of *P. armandii* is rather horizontal and open; the tree in its earlier years is nearly as wide as it is high. The young shoots are quite smooth, of a dark olive brown color, the finely serrulate needles mostly 4-5 inches (10-13 cm.) long, widely separated in the clusters. The handsome cones, borne on stalks an inch or more in length, are usually 5-6 inches long (13-15 cm.) and about half as wide, with thick and often somewhat recurved scales. The seed is wingless, in which character it resembles our limber pine from the Rocky Mountain region, *P. flexilis*. The nearest relatives are the limber pine, which extends north to British Columbia and Alberta, and the Mexican white pine, *P. ayacahuite*, which is found from central Mexico south through Guatemala into Honduras and El Salvador. Both of these have downy young shoots, and the glaucous gray serrulate leaves and long cones of the latter are very different from the Chinese species. The southwestern white pine, *P. strobiformis*, found from southern Colorado to western Texas and northern Mexico, is intermediate between these two in many characters. The seed may be wingless or have a very short wing.

The needles of *P. flexilis* are only 3-3.5 inches long (8-9 cm.), not serrated as a rule, and are commonly borne in brush-like tufts at the ends of the shoots.

This five-needled pine is the chief representative of the subgenus *Strobus* in China, where it occurs in several different areas in the north, west and south (Kansu to Szechuan and Yunnan), extending as far west as the borders of Upper Burma, eastwards to the mountains of Taiwan (var. *mastersiana*) and even to two islands (Yakushima and Tanegashima) just south of Japan (var. *amamiana*).

E. H. Wilson commented on it (*Plantae Wilsonianae*, vol. II, p. 13 (1914)); "It is everywhere a tree of medium size, shapely in habit with smooth, pale gray bark and cones borne on the ends of the branches which normally are straight and horizontally wide-spreading. The wood is resinous, close-grained, soft but durable. It is esteemed for general building purposes and is commonly used for torches. The tree delights in a rocky country where precipitation is relatively great."

Pinus armandii appears to have considerable merit among others of its race and at present discloses no problems of diseases or pests. It is now a matter perhaps of propagating and distributing it for wider testing.

BRIAN O. MULLIGAN

(continued from p. 19)

to that of *Embothrium coccineum*, the Chilean fire bush, and to two species of *Nothofagus*, namely *N. antartica* and *N. pumilio*. All three are represented in the Arboretum in small numbers at the present time. If seeds could be obtained from extreme southern Chile, the chances of growing them more successfully in this climate would be greatly increased. *B.O.M.*

Unit Conversations

PLANT SALE DAZE

Our country has taken 200 years to arrive at its fantastic proportions. The Unit Council has taken just 29 years to create a plant sale of such proportions that it mushrooms all over the Arboretum parking lot for two days in early May. It has become well-known among northwest gardeners. Chairmen have been plotting, planning, pursuing and potting plant material for our sale. Buyers have been to Oregon for choice plants, the woods and meadows have been mapped for natives, and seeds and cuttings have been carefully tended.

Amenities for the customers will include snack bar, Will Call area for their purchases, shuttle buses, and Pre-Order. To add to the excitement of green plants, Phyllis Morgan (Edward) and Jody Logan (Gordon) will provide some red, white, and blue flowers for our enjoyment and for sale. Jeanne Gardiner (Arthur) will offer prize bulbs to carry the Bicentennial colors into gardens through the summer.

Our customers will be further stimulated by door prizes to be awarded hourly. These will include plants, tools and related garden items. Any donations for this department please call Isobel Johnson (Phillip) at 284-5385.

The sale will be WEDNESDAY and THURSDAY, May 5th and 6th. Volunteers to work setup and sales call Pat Moncini (Lucien) at 232-3169. Drivers for the shuttle bus service call LeRoy Collins 232-5258.

MARY ELLEN MULDER

UNIT ACTIVITIES

Jeanne Gardiner reported that the Fall Bulb Sale netted $787.00.

Jeannine Curry reported that the final net profit from the annual Spring 1975 Plant Sale stands at $15,097.00.

Marlee McKibbin, membership chairman, announced that an all men unit is being formed. Anyone interested in joining should call her at 365-1546.

Elizabeth Moses is in charge of the Arboretum Explorers. Anyone interested in learning more about our Arboretum may meet for the Explorers' Walk at the Arboretum office each fourth Wednesday of each month at 10:00 A.M. This is open to the public.

Elizabeth is also Native Walk Guide chairman, and has had many requests for this lovely walk in the Arboretum, mostly from teachers for grade-school children. They learn the names of our native trees, shrubs, ferns and other plants and also some of the uses for these plants from the American Indians.

Louise Czerniski, greenhouse chairman, told us that a new workbench has been installed. The greenhouse crew has been busy propagating new plants for the plant sale in May. They can use more helpers any Tuesday.

Joan Arnold, Japanese Garden guide chairman, has had more than twenty requests for tours since June. There is a lot of enthusiasm being shown for this rare and beautiful garden.

Cora Gardiner, School and Hospital Program chairman, reports of many visits by her and her group of guides. These include visits to Group Health Hospital and to Children's Orthopedic Hospital to show and teach the young patients about some of our native plants. The children also are given a few plants which they can watch grow. The School Program has been popular too and very enthusiastically received by children and teachers too.

Diggs Doctor, Work and Fun Day chairman, reminds us that the big day will be April 15. The sun will shine and the temperature will be in the seventies, so that all workers are absolutely guaranteed of a nice day to tidy up the Arboretum before the plant sale.

D. J. Wyble, Slide Program chairman, informs us that many new slide programs are available to units for their use. These may be checked out through the Arboretum office.

Several study groups sponsored by the Unit Council include: Rhododendrons, Northwest Natives, Rock Garden and Arboretum Explorers. Anyone wishing to participate may have information by calling the Arboretum Office, 325-4510 Monday through Friday from 9 AM to 4:30 PM.

MARIAN ADDISON

Thorgrimson Cup*

In reviewing the activities of Unit 41 for the year 1974, it is not any one monumental event that is noteworthy; but the cumulative efforts of our 45 members seem worthy of consideration for the prestigious Thorgrimson Cup.

The Arboretum Bulb Sale has grown from a Unit 41 project begun by Frances MacBride. Jean Gardiner, as chairman of this Bulb Sale for the past five years, and assisted this year by Jane Rogers, has researched bulb suppliers; compiled bulb lists; stapled, sorted and mailed hundreds of flyers; catalogued resulting orders; bagged, boxed and sorted thousands of bulbs; filled orders for from one to a thousand bulbs with equal care and patient; organized and fed work parties in her home nearly round the clock; potted hundreds of bulbs which required immediate planting; carried them upstairs and down for sale at meeting after meeting! climaxed in spring and fall by the exquisite blossoms seldom available except through the Arboretum. Beyond the call of duty was her delivery of one order, in person, to a buyer in Australia.

The Arboretum Foundation has benefitted from Unit 41 member Loretta Slater as Book chairman, assisted by Helen Ogden as her treasurer. Loretta's job is one requiring much research, fetching and toting of heavy boxes of books to countless meetings for exposure and sale.

Betty Brokaw has just served as assistant Secretary to the Unit Council.

Dora Murphy has been a faithful participant in the Foundation's School program, taking the Arboretum to the classrooms.

Jean Henry is an enthusiastic trainee and participant as Guide for the Foster Island Nature Walks.

Betty Smith, Margie Perdue, Dancey Halloran and Pat Moncini have worked one Tuesday a month at the Patricia Calvert Greenhouse.

Karol Keiffer was last year's Tree and Shrub chairman at the Plant Sale. Ellen Martarano was Fern chairman and many of our members assisted in setting up and selling on Sale days.

Eight of our members turned out for Work and Fun Day.

Our 1973-1974 yearbook received second place in Foundation competition.

Unit 41 has its own Plant sale each fall, at which plants grown it its own members are sold. Last year's sale netted over $200.00, which was donated to the Foundation for the use of Joe Witt. Our "head propagators" Maybelle Johnson, Margaret Mulligan, Elsie Watson, Kitty Schwarz, Jean Gardiner and Ellen Martarano and many other members have grown and donated literally hundreds of choice plants. Their efforts continue to inspire newer members to learn more about propagation and use of unusual plant material, as well as to become aware of and careful about plant identification and nomenclature.

Unit 41's continued emphasis is not only in support of the Arboretum financially, but in education of members; encouragement of member participation in programs; on-going growth in all areas of garden interest, from soil to seed, from bulb to bloom, from cutting to cultivation. Average attendance at our monthly meetings is 28. We meet year around, even through the summer. Most meetings are held in our homes, but we have tours through the colorful spring months and a picnic every summer.

One of the most consistently exciting parts of our meetings is Roll Call "Show and Tell," when members share whatever is in bloom in their gardens, accurately labeled and described, continually enticing newer members to enlarge their horizons in choice of plant material. A cuttings exchange is held annually to share favorites.

Started five years ago, another Unit 41 inspiration are mini-talks given at each meeting, assigned ahead to one member each month covering a subject area over a whole year. This year's subject has been "Her Garden Was Her Delight," featuring outstanding women gardeners of the Seattle area. These reports will be compiled into a booklet and include stories about the gardens of Frances MacBride, Marie Manthey, Mimi Brandes, Elsie Frye, Mrs. Blackford, Pat Ballard, Myrtle deFriel, and Helen Buzard.

It is difficult indeed to measure the overall impact of a unit like 41, inspired by knowledgeable women, who in the tradition of Frances MacBride, seek to enlarge the boundaries of our gardens to encompass the Arboretum and the community at large.

PATRICIA T. MONCINI

*Last year's second place winner.

(continued from p. 9)

From increased investigations will come a broader understanding of the ways in which individuals respond to plants and the meaning of those responses. The people-plant response will undoubtedly be seen as reaching beyond the stress of urban ghetto, mental hospital and physical rehabilitation center, helping man maintain his balance and sense of proportion while adjusting to radical changes around him. In design of human settlements, the inclusion of opportunities for intimate human-plant relationships might help to create benevolent environments — human niches which encourage rather than thwart the pursuit of a rewarding and happy life. In the practice of horticulture lies benefit for both plant and man. The people-plant interaction can add beauty and serenity to the "landscape" of the human spirit, helping those in need find a more satisfying life.

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Book Reviews

FERN GROWERS MANUAL, by Barbara Joe Hoshizaki, Alfred A. Knopf, Inc., New York, 1975. Illustrated with eight pages of color photographs, and 300 black and white photographs and drawings. 256 pages. Price $15.00

The author has devoted many years of work to ferns as professor of botany at Los Angeles City College, as curator of pteridophyta at the University of California at Los Angeles, as a long time member of the American Fern Society and, last but not least, as president of the Los Angeles International Fern Society. Mrs. Hoshizaki has done field work throughout the United States and Central America, and is the author of many scientific papers.

This horticultural guide covers all aspects of propagation and cultural needs of ferns such as temperature, light, humidity, and special soil requirements. Special chapters on fertilizers and insecticides give advice on their use, and how to avoid various cultural errors. Other chapters cover the planting of ferns in beds, pots, terrariums, and baskets and lists of the species or varieties best suited for each particular use.

Nearly five hundred of the species, subspecies, and cultivars generally grown in the United States are discussed along with their specific requirements. The hardiness, size and form of each species is indicated. In many cases, unusual characters of a specific fern are illustrated with close-up photographs.

Chapter nine lists a few ferns that would be dependable in all the northwestern states. However, practically every one of the hundred or more ferns listed as hardy in chapter thirteen would also be dependable in Puget Sound gardens when properly grown. Since this guide was written in Southern California some species when grown in this area would require more light exposure than indicated for the southern gardens.

In conclusion, I would recommend this book to all gardeners who are interested in learning more on propagation or the growing of ferns, either as houseplants or in the garden.

NEILL D. HALL

THE FLOWER GARDEN IN ENGLAND, Richard Gorer. Published in association with the Royal Horticultural Society, B. T. Batsford Ltd., London, Sydney. 1975. Illustrated. 178 pp. $11.50

In this book describing the evolution of the flower garden in England from the Elizabethan and Jacobean gardens in the sixteenth and seventeenth centuries,

Mr. Gorer tells in great detail the various stages of its development through what he calls the floral explosion of the nineteenth century, when vast numbers of new plants were introduced, to the twentieth century and the present day. He deals interestingly with many lists of plants and writers of the day, giving us an insight into what was grown and how the plants were used during the different periods.

Flowers before the nineteenth century were of minor importance in the garden design of that day, simply because there were very few. But as more new species became available through the efforts of plant collectors, they gradually grew in favor and widened in their appeal.

Around 1800 the demand for plants and trees was such that nurseries flourished in practically every large town in England. In 1845 the tax on sheet glass was removed with the result that greenhouses became very much cheaper and more available to the middle classes. Young plants were raised under glass, which had not been possible before except in large estates, and it was at about this time that the bedding-out system was started. Although rock gardens were built as far back as 1830, the first one, as we know it today, was constructed by Messrs. Backhouse of York in 1859. Nearly 500 tons of sandstone was used. The firm also issued the first alpine catalog in 1865.

The author has an easy and pleasing style and has researched the subject well. While this book may not be for every gardener, it certainly offers a mine of the most interesting information to those who wish to improve their understanding and knowledge of the English flower garden. The book has many illustrations including several reproductions of old prints and photographs.

NORMAN D. MARRETT

LEWIS CLARK'S FIELD GUIDES TO: 1. Wild flowers of forest and woodland, 2. Wild flowers of field and slope, 3. Wild flowers of marsh and waterway, 4. Wild flowers of the sea coast, 5. Wild flowers of the arid flatlands, 6. Wild flowers of the mountains in the Pacific Northwest. Editor, John G. S. Trelawny, Grays Publishing Limited, Sydney, British Columbia, Canada. Superior Publishing Inc., Seattle, WA. 1974. $3.95 each.

Of all the available wild flower guides featuring color photographs of flowering plants as the major means of identification, perhaps the most successful and beautiful is the now out-of-print *Flowers of British Columbia*, with photographs and text by the late Dr. Lewis J. Clark. Recently a series of six soft-covered field guides have been printed to fill the demand created by Dr. Clark's book. This series is possibly one of the best sets of field guides using color photographs as the major means of identification presently available. Each guide is related to a distinct ecosystem: forest and woodland, field and slope, marsh and waterway, the sea coast, the arid flatlands, and the mountains.

Each guide is introduced by a description of the ecosystem it covers, the peculiar environmental aspects of that particular habitat and some of the adaptations necessary for survival exhibited by the plants found in these areas. Anecdotal comments regarding certain species, particularly those relating to conservation, are included.

Each guide also presents approximately 100 color photographs of the most conspicuous flowering plants found in that particular ecosystem. Usually there is one picture per species, with an accompanying scale showing how much the flower is reduced or magnified. The color is quite true and photographs are both artistic and accurate. In addition to the pictures, a short written description of the illustrated species and a glossary helps the novice interpret the botanical terms. As the description may include several similar species, the total number described is closer to 130 for each guide. Geographically, the set of guides takes in an area from southern Alaska to northern California and from the Pacific Coast through the Cascades to the Rockies.

One of the interesting features of the guide is the magnification of relatively small flowers. When this is done with either *Mitella pentandra* (Alpine Mitrewort) or *Tellima grandiflora* (the Tall Fringe-cup) the unique beauty of these tiny flowers is most striking.

There is no doubt that books of this type are very helpful for the amateur botanist and for the professional as well. However, they still have their limitations. Only the most conspicuous flowering plants are included. This leaves out the grasses, sedges, etc. Also, the guides do not use keys, but rely entirely on the written description and photographs for the identification. Inasmuch as the photographs primarily emphasize the flower, leaves may be pictured or not, depending somewhat on the aesthetics of the picture. In many cases, plant forms are difficult to make out, or not shown. For instance, in the photograph of the hazelnut, which shows just the male and female flowers, there is very little other help to identify this particular species.

These criticisms are not leveled at this particular set of guides, but at most guides I have seen using color photographs as the principle means of identification. This set of guides should be very valuable either as individual booklets, or even more so, as a set. I highly recommend them as part of a library of any interested botanist. They also could be useful in the field as they are small and light enough to be carried readily. There appears to be no repeats in any of the booklets, which indicates careful selection by the editor.

It might be interesting to note that *Wild Flowers of British Columbia* was originally published in three hardcover editions. One was $35, one at $50, and a third very expensive edition at $100. All these editions are now out of print and are on their way to becoming collectors' items.

Lewis J. Clark, B.A. (Hons.) (U.B.C.), M.Sc. (U. Wash.), Ph.D. (Oregon State U.), and professor emeritus, Department of Chemistry, University of Victoria for 45 years, undertook extensive botanical studies, and as an accomplished photographer exhibited and served as judge in international salons. Dr. Clark, an ardent conservationist, felt that an appreciation of our flora and fauna was fundamental to the preservation of our natural environment. This concern lies behind his work on the highly successful *Wild Flowers of British Columbia* which inspired the creation of these field guides.

JOHN A. PUTNAM

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ANNUAL RHODODENDRON SHOW
April 30, May 1-2

The Seattle Chaper of the American Rhododendron Society will hold their 26th Annual Rhododendron Show at the Bellevue Square Plaza April 30th, May 1 and 2. The show will be open to the public from 2:00 P.M. to 9:00 P.M. on Friday, April 30, from 10:00 A.M. to 9:00 P.M. on Saturday and from 10:00 A.M. to 5:00 P.M. on Sunday.

There will be many commercial landscape exhibits in addition to amateur cut blooms and specimen plants. The show is free and the public is invited to attend.

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Spring will soon be here and so will the Arboretum Plant Sale on May 5 and 6. All donations of "spare" plants from your garden will be most welcome. Many of you, we hope, will be thinning your gardens and we really could use your surplus. If you have spare time and wish to help, almost any time before the sale, John and Mary Robinson would be most grateful. Give them a call 323-4951, with your ideas, suggestions and assistance.

Listed below are plant sale area deposit stations. Persons donating plants are requested to list all plants donated. Make sure the donor's name and address are plainly listed and to take the plants to the nearest deposit station. Donated plants will be accepted at the Arboretum until May 4, 5:00 P.M. All donations should be potted, or balled and burlapped, and tagged (name of material and color). Thank you very much.

BELLEVUE
Mrs. David Clarke 746-7706
16280 South East 24th, Bellevue 98008

Cora Gardiner 746-2997
203-140th, Bellevue 98004

KIRKLAND-EASTGATE
Mrs. Arthur Gardiner 822-9704
7601 Champagne Point Road, Kirkland 98033

KITSAP-BAINBRIDGE
Mrs. Philip Keith 842-5084
Route 4, Box 4866, Bainbridge Island 98110

MERCER ISLAND
Mrs. Donald H. Hochberg 232-3294
4148 Boulevard Place, Mercer Island 98040

Mrs. David Wolter 232-4790
7710 South East 22nd, Mercer Island 98040

Mrs. Charles H. Wyble 232-5696
8811 South East 56th, Mercer Island 98040

NORMANDY PARK-BURIEN
Mrs. George McDowell 242-1065
1673 South West 176th, Seattle, 98166

NORTHWEST
Mrs. Ivan Settles 365-5236
16722 Meridian Ave. N., Seattle 98133

SOUTH KING COUNTY
Mrs. W. E. Williams 854-4014
11610 South East 196th, Renton 98055

WEST SEATTLE
Mrs. Francis Bell 932-6016
5242-37th South West, Seattle 98126

ARBORETUM FOUNDATION PLANT SALE MAY 5 and 6, 1976

PRE-ORDER FORM

IMPORTANT: In previous years, unsolicited deposits have been sent along with some pre-orders to insure first choice. On the other hand, unclaimed or unpaid plants have been sold at a loss because of damage suffered by too much handling. Consequently, please include, with this pre-order form, a check made to "Arboretum Foundation" in the amount of $5.00. This will be **refundable** if the order cannot be filled or considered as a **donation** (tax deductible) to the foundation if the pre-ordered plants are not **picked up or paid for by May 5th, 8:00 PM** (unless prior arrangements have been made with the pre-order personnel).

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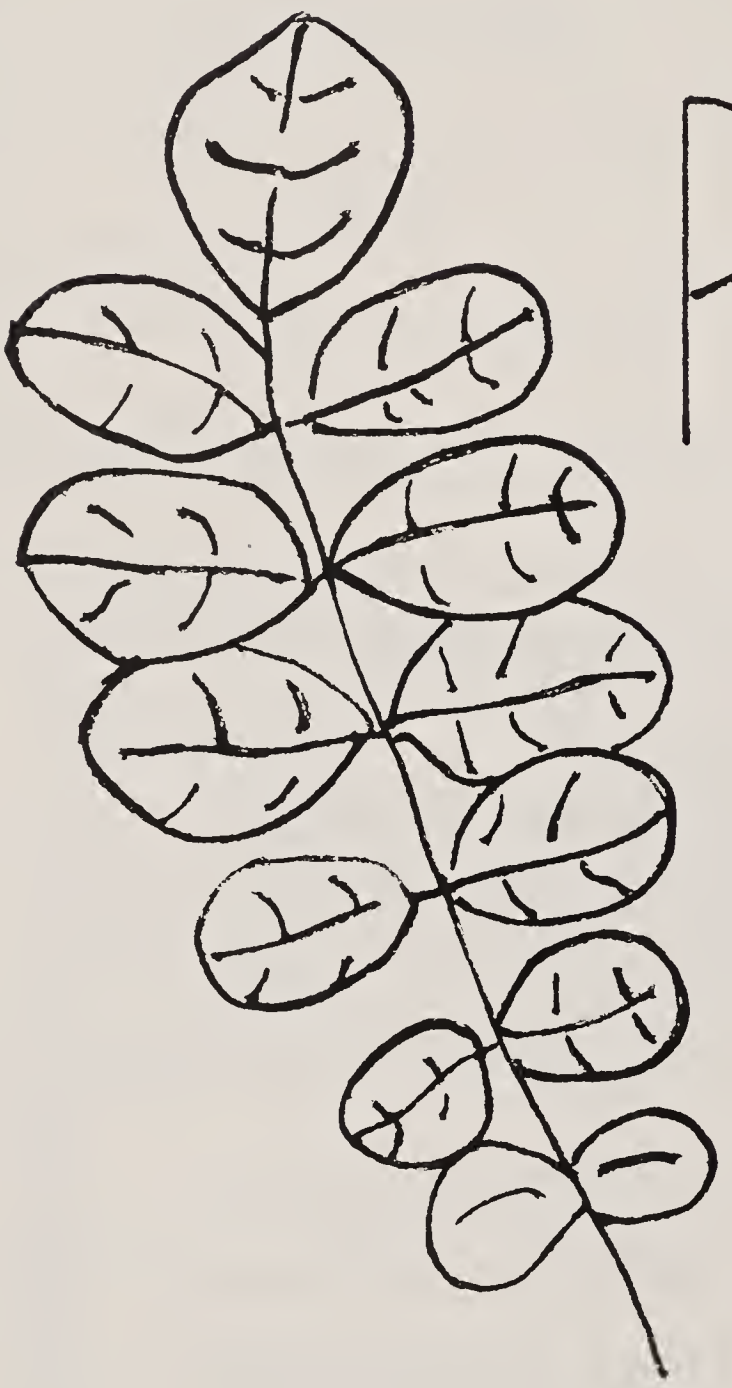

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CALENDAR OF EVENTS

DATE	EVENT
April	
1	Unit Council Governing Board Meeting
5	Rhododendron Study Group
8	Foundation Executive Committee Meeting
13	House Plant Study Group
14	Bulletin Editorial Board Meeting
15	WORK & FUN DAY
19	Northwest Natives Study Group I
21	Rock Garden Study Group
26	Northwest Natives Study Group II
28	Arboretum Explorers
	LOOKING AHEAD
May	
3	Rhododendron Study Group
5 & 6	PLANT SALE
11	House Plant Study Group
12	Bulletin Editorial Board Meeting
13	Unit Council Governing Board
13	Foundation Executive Committee Meeting
17	Northwest Natives Study Group I
19	Rock Garden Study Group
24	Northwest Natives Study Group II
26	Arboretum Explorers
June	
3	ANNUAL MEETING

REMEMBER

Every TUESDAY — Greenhouse Day; Every FIRST FRIDAY — Herbarium Committee; Every FOURTH WEDNESDAY — Arboretum Explorers

FOR INFORMATION, CALL 325-4510